

## CLAIMS

1 1. A logically partitioned data processing system,  
2 comprising:  
3 a plurality of logical partitions;  
4 a plurality of operating systems, each assigned to  
5 one of said plurality of logical partitions;  
6 a plurality of memory locations, each location  
7 assigned to one of said plurality of logical partitions;  
8 a data transmission bus;  
9 at least one terminal bridge connected to said data  
10 transmission bus;

11 a plurality of input/output adapters, each  
12 associated with a different one of said plurality of  
13 logical partitions, said input/output adapters being  
14 connected to said terminal bridge; and  
15 means for preventing transmission of data between a  
16 given one of said input/output adapters which is  
17 associated with a first one of the plurality of logical  
18 partitions, and memory locations unassigned to said first  
19 one of said plurality of logical partitions.

1 2. The logically partitioned data processing system  
2 of Claim 1 wherein said data transmission bus is a PCI  
3 bus, and further comprising:  
4 a PCI host bridge connected to said PCI bus; and  
5 an input/output bus connected to said PCI host  
6 bridge.

1 3. The logically partitioned data processing system  
2 of Claim 1 wherein said terminal bridge has a plurality  
3 of sets of range registers, each associated with a  
4 respective one of said input/output adapters.

1 4. The logically partitioned data processing system  
2 of Claim 3 further comprising an arbiter which selects  
3 one of said input/output adapters to use said data  
4 transmission bus, wherein said transmission preventing  
5 means assigns one of said sets of range registers based  
6 on a grant signal from said arbiter.

1 5. The logically partitioned data processing system  
2 of Claim 3 wherein said sets of range registers contain  
3 direct memory access addresses which limit operations  
4 that may be placed onto said data transmission bus by  
5 said input/output adapters.

1 6. The logically partitioned data processing system  
2 of Claim 3 wherein said sets of range registers are  
3 programmable.

1           7. A method of preventing an operating system image  
2 within a logically partitioned data processing system  
3 from fetching or corrupting data from a memory location  
4 allocated to another operating system image within the  
5 data processing system, the method comprising the steps  
6 of:

7           receiving a request from the operating system image  
8 to access a given one of a plurality of input/output  
9 adapters each associated with a different one of a  
10 plurality of logical partitions of the data processing  
11 system, wherein the input/output adapters are connected  
12 to a single terminal bridge; and

13           accessing the given input/output adapter using  
14 memory mapped to the operating system image.

1           8. The method of Claim 7 wherein said accessing step  
2 includes the steps of:

3           transmitting the request to a PCI host bridge using  
4 an input/output bus; and

5           conveying the request from the PCI host bridge to  
6 the terminal bridge using a PCI bus.

1           9. The method of Claim 7 wherein said accessing step  
2 utilizes one of a plurality of sets of range registers of  
3 the terminal bridge, each associated with a respective  
4 one of the input/output adapters.

1           10. The method of Claim 9 wherein said accessing  
2 step further utilizes an arbiter which selects one of the  
3 input/output adapters, to assign one of the sets of range  
4 registers based on a grant signal from the arbiter.

1           11. The method of Claim 9 further comprising the  
2 step of associating each of the sets of range registers

3 with direct memory access addresses which limit access by  
4 the input/output adapters.

1 12. The method of Claim 9 further comprising the  
2 step of programmably loading the sets of range registers.

1           13. A computer program product for use in a data  
2 processing system for preventing an operating system  
3 image within a logically partitioned data processing  
4 system from fetching or corrupting data from a memory  
5 location allocated to another operating system image  
6 within the data processing system, the computer program  
7 product comprising:

8           a storage medium; and  
9           program instructions stored on said storage medium  
10 for receiving a request from the operating system image  
11 to access a given one of a plurality of input/output  
12 adapters each associated with a different one of a  
13 plurality of logical partitions of the data processing  
14 system, wherein the input/output adapters are connected  
15 to a single terminal bridge, and for accessing the given  
16 input/output adapter using memory mapped to the operating  
17 system image.

1           14. The computer program product of Claim 13 wherein  
2 the request comprises an input/output adapter identity, a  
3 memory address range to be mapped, and a direct memory  
4 access range, and said program instructions further  
5 determine that the identity of the input/output adapter,  
6 the memory address range, and the direct memory access  
7 range are allocated to the operating system image.

1           15. The computer program product of Claim 13 wherein  
2 said program instructions access the input/output adapter  
3 utilizing one of a plurality of sets of range registers  
4 of the terminal bridge, each associated with a respective  
5 one of the input/output adapters.

16. The computer program product of Claim 15 wherein said program instructions further load the sets of range registers.